CLAIMS

1-6. (Withdrawn)

7. (Currently Amended) A method of inducing bone formation in a mammal comprising administering an effective amount of a fusion polypeptide comprising a protein transduction domain and an osteoiductive polypeptide comprising at least one isolated osteoinductive region of an LMP-1 protein ~~or an LMP-3 protein~~, wherein the osteoinductive polypeptide has less than 100% homology to LMP-1, RLMP, and LMP-1s.

8. (Original) The method of claim 7 wherein the protein transduction domain is chosen from the group consisting of HIV-TAT, VP-22, a growth factor signal peptide sequence, Pep-i, and a Drosophila Antp peptide.

9. (Original) The method of claim 7 wherein the protein transduction domain is an HIV-TAT protein transduction domain.

10. (Currently amended) The method of claim 7 wherein the osteoinductive polypeptide is chosen from the group consisting of SEQ ID NO 1, SEQ ID NO 2, ~~SEQ ID NO 3~~, SEQ ID NO 4, SEQ ID NO 5, SEQ ID NO 6, SEQ ID NO 7, SEQ ID NO 8 and combinations thereof.

11. (Previously presented) The method of claim 7 wherein the osteoinductive polypeptide comprises SEQ ID NO 7, or SEQ ID NO 8.

12. (Original) The method of claim 7 wherein the fusion polypeptide is administered as an implant.

13. (Original) The method of claim 7 wherein the fusion polypeptide is administered by hydrogel.

14. (Original) The method of claim 7 wherein the fusion polypeptide is administered to at least one multipotent progenitor cell.

15. (Original) The method of claim 14 wherein the at least one multipotent progenitor cell is implanted into the mammal.

16.-20. (Withdrawn)

21. (Currently Amended) A method of inducing proteoglycan synthesis in a mammal comprising administering an effective amount of a fusion polypeptide comprising a protein transduction domain and an osteoiductive polypeptide comprising at least one isolated osteoinductive region of an LMP-1 protein ~~or an LMP-3 protein~~, wherein the osteoinductive polypeptide has less than 100% homology to LMP-1, RLMP, and LMP-1s and wherein the proteoglycan concentration prior to said administering step is less than said concentration post said administering step.

22. (Original) The method of claim 21 wherein the protein transduction domain is chosen from the group consisting of HIV-TAT, VP-22, a growth factor signal peptide sequence, Pep-1, and a Drosophila Antp peptide.

23. (Original) The method of claim 21 wherein the protein transduction domain is an HIV-TAT protein transduction domain.

24. (Currently amended) The method of claim 21 wherein the osteoinductive polypeptide is chosen from the group consisting of SEQ ID NO 1, SEQ ID NO 2, ~~SEQ ID NO 3,~~ SEQ ID NO 4, SEQ ID NO 5, SEQ ID NO 6, SEQ ID NO 7, SEQ ID NO 8 and combinations thereof.

25. (Previously presented) The method of claim 21 wherein the osteoinductive polypeptide comprises SEQ ID NO: 7 or SEQ ID NO: 8.

26. (Original) The method of claim 21 wherein the fusion polypeptide is administered as an implant.

27. (Original) The method of claim 21 wherein the fusion polypeptide is administered by hydrogel.

28. (Original) The method of claim 21 wherein the fusion polypeptide is administered to at least one multipotent progenitor cell.

29. (Original) The method of claim 21 wherein the at least one multipotent progenitor cell is implanted into the mammal.

30. (Original) The method of claim 21 wherein the proteoglycan is aggrecan.

31.-35. (Withdrawn)

36. (Currently Amended) A method of inducing osteoblast differentiation in a progenitor cell, the method comprising administering to the progenitor cell an effective amount of a fusion polypeptide comprising a protein transduction domain and an osteoiductive polypeptide comprising at least one isolated osteoinductive region of an LMP-1 protein ~~or an LMP-3 protein~~, wherein the osteoinductive polypeptide has less than 100% homology to LMP-1, RLMP, and LMP-1s and wherein the differentiated osteoblast concentration prior to said administering step is less than said concentration post said administering step.

37. (Original) The method of claim 36 wherein the protein transduction domain is chosen from the group consisting of HIV-TAT, VP-22, a growth factor signal peptide sequence, Pep-1, and a Drosophila Antp peptide.

38. (Original) The method of claim 36 wherein the protein transduction domain is an HIV-TAT

protein transduction domain.

39. (Currently amended) The method of claim 36 wherein the osteoinductive polypeptide is chosen from the group consisting of SEQ ID NO 1, SEQ ID NO 2, ~~SEQ ID NO 3~~, SEQ ID NO 4, SEQ ID NO 5, SEQ ID NO 6, SEQ ID NO 7, SEQ ID NO 8 and combinations thereof.

40. (Previously presented) The method of claim 36 wherein the osteoinductive polypeptide comprises SEQ ID NO 7, or SEQ ID NO 8.

41.-43. (Withdrawn)

44. (New) The method of claim 7, wherein the fusion polypeptide consists of a protein transduction domain and at least one isolated osteoinductive region of an LMP-1 protein.

45. (New) The method of claim 44, wherein the osteoinductive region is selected from the group consisting of SEQ ID NO 1, SEQ ID NO 2, SEQ ID NO 4, SEQ ID NO 5, SEQ ID NO 6, SEQ ID NO 7, SEQ ID NO 8 and combinations thereof.

46. (New) The method of claim 21, wherein the fusion polypeptide consists of a protein transduction domain and at least one isolated osteoinductive region of an LMP-1 protein.

47. (New) The method of claim 46, wherein the osteoinductive region is selected from the group consisting of SEQ ID NO 1, SEQ ID NO 2, SEQ ID NO 4, SEQ ID NO 5, SEQ ID NO 6, SEQ ID NO 7, SEQ ID NO 8 and combinations thereof.

48. (New) The method of claim 36, wherein the fusion polypeptide consists of a protein transduction domain and at least one isolated osteoinductive region of an LMP-1 protein.

49. (New) The method of claim 48, wherein the osteoinductive region is selected from the group consisting of SEQ ID NO 1, SEQ ID NO 2, SEQ ID NO 4, SEQ ID NO 5, SEQ ID NO 6, SEQ ID NO 7, SEQ ID NO 8 and combinations thereof.